Ejuſdem Doctoris *WALLISII*
Non-nulla,
De *Centro Gravitatis Hyperbolæ*,
Prægreſſæ Epiſtolæ ſubnexa.

Andem vero, ne nihil habeas præter Confutatum Hobbium, (*quæ fortè non tanti res eſt, ut de ea multum ſis ſolicitus ;*) *libet hic annectere*, De Centro Gravitatis Hyperboles *nonnihil* ; (*præterito Anno conſcriptum* ;) *Miſcellaneis illis, ſi placet ſubjungendum, quæ habemus ad* Prop. 1. Cap. XV. De Motu. *Nempe*, pag. 753. l. 26. ibidem.

Poſt §. 10. *Hæc addantur.*

11. *Etiam hoc addo* Spatii Hyperbolici, ſive interioris ſive exterioris, *non quidem ipſum Gravitatis Centrum, ſed Rectam in quâ eſt, ſeu* Axem Æquilibrii exhiberi poſſe, etiamſi ignoretur Plani Magnitudo.

Vid. Tab. II Fig. 4. *Eſto enim expoſitæ Hyperbolæ* HhV, *Centrum* A, *axis* AX, *vertex* V, *latus rectum* L, *axis tranſverſus* $T=2S$, *axes intercepti* $VD=D$, $Vd=d$, *ordinatim-applicatæ* $HD=H$, $hd=h$, *axis conjugatus* $A\Delta$, *ad quem ordinatim-applicatæ* $H\Delta=K$, $h\delta=k$, *aſymptotarum alteri* $A\sigma$ *parallela* $HS=B$ *ad alteram* $AS=A$ *ordinatim-applicetur*, & VO *ad* $AO=E$, & hs *ad* As ; *atq;* *intelligatur* $SA\sigma$ *angulus rectus* ; *ſitque* $OS\ (=A-E)=O$.

Sunt (*propter* $h=\surd:dL+\frac{L}{T}d^2:$) *ordinatarum ad axem ſemi-quadrata, ſeu momenta reſpectu* AD, $\frac{1}{2}Ld+\frac{L}{2T}d^2$; & (*propter* Omn : d, $=\frac{1}{2}D^2$, & Omn . d^2, $=\frac{1}{3}D^3$,) *ſimul omnia, ſeu Momentum totius* HVD *reſpectu* AX, $\frac{1}{4}LD^2+\frac{L}{6T}D^3$.

Idem (*propter* $k=\surd:S^2+\frac{T}{L}h^2:$) *ordinatarum ad axem conjugatum ſemi-quadrata, ſeu momenta reſpectu* $A\Delta$, $\frac{1}{2}S^2+\frac{T}{2L}h^2$; & (*propter* Omn . h^2, $=\frac{1}{3}H^3$,) *ſimul omnia, ſeu totius* $AVH\Delta$, *momentum reſpectu* $A\Delta$, $\frac{1}{2}ſ^2H+\frac{1}{6L}H^3$. *Quod ex* (*totius* $ADH\Delta$ *momento*) $\frac{1}{2}K^2H=\frac{1}{2}S^2H+\frac{T}{2L}H^3$ *ſubductum*, *relinquit reſidui* HVD, *reſpectu* $A\Delta$, *momentum* $\frac{T}{3L}H^3$.

Ergo (*propter diſtantias momentis proportionales,*) *in* DH, *ſumptâ* DG, *quæ ſit ad* AD, *ut* $\frac{1}{4}LD^2+\frac{T}{3}D^3$ *ad* $\frac{T}{3L}H^3$; *hoc eſt*, $3TL^2D^2+2L^2D^3$ *ad* $4T^2H^3$; *erit in* (*junctâ*) AG, *ipſius* HVD *centrum Gravitatis* ; *utpote cujus puncta ſingula in eâ ratione diſtant ab* AD, $A\Delta$.

Idem obtinebitur ope momenti ipſius HVD *reſpectu Aſymptotæ* $A\sigma$.

Eſt (*per* § *D* Prop. 31. Cap. 5.) *ipſius* $OVHS$, *reſpectu* $A\sigma$, *momentum* ABO. *Eſt autem Trianguli* ASX ($=\frac{1}{2}A^2$,) *reſpectu ejuſdem* $A\sigma$, *momentum* $\frac{1}{3}A^3$; & *Trianguli* AOV *momentum* $\frac{1}{3}E^3$; *poſitiſque* $HX(=A-B)=X$, & DB (*parallelâ* AS) $=Y$, *adeoque* $HDX=\frac{1}{2}XY$, *hujuſque ab* $A\sigma$ *diſtantiâ centri Gravitatis* $A-\frac{1}{3}Y$, *erit Trianguli* HDX, *reſpectu* $A\sigma$, *momentum* $\frac{1}{2}AXY-\frac{1}{6}XY^2$. *Ergo* (*propter* $HVD=ASX-AOV-OVHS-HDX$) *ipſius* HVD, *reſpectu* $A\sigma$, *momentum* $\frac{1}{3}A^3-\frac{1}{3}E^3-ABO-\frac{1}{2}AXY+\frac{1}{6}XY^2$.

Ergo

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Ergo (propter diſtantias momentis proportionales) in DH ſumptâ DQ, quæ ſit ad AS, ut $\frac{1}{4}LD^2+\frac{L}{6T}D^3$ *ad* $\frac{1}{3}A^3-\frac{1}{3}E^3-ABO-\frac{1}{2}AXY+\frac{1}{6}XY^2$; *ductâque QK parallelâ AX occurrente SX in K; erit in (juncta) AK, (utpote cujus ſingula puncta in ea ratione diſtant ab AD,* $A\sigma$,*) Centrum gravitatis HVD. Quæ quidem AK eſt eadem poſitione recta cum AG; quoniam utraq; tum per A tranſit, tum per Centrum Gravitatis HVD.*

Similiter (ob eandem cauſam,) in ΔH *ſumpta* ΔL, *quæ ſit ad AS, ut* $\frac{T}{3L}H^3$ *ad* $\frac{1}{3}A^3-\frac{1}{3}E^3-ABO-\frac{1}{2}AXY+\frac{1}{6}XY^2$; *ductaque LK parallelâ* $A\Delta$, *occurrente SX in K; erit in (juncta) AK (cujus utique ſingula puncta in ea ratione diſtant ab* $A\Delta$, $A\sigma$,*) centrum gravitatis HVD. Erit autem hoc K idem quod prius, ob cauſam modò inſinuatam.*

12. *Simili proceſſu utendum in ſpatio exteriori OVHS.*

Eſt enim (ut jam oſtenſum) hujus, reſpectu $A\sigma$, *momentum* ABO.

Item, reſpectu AX, Trianguli $ASX=\frac{1}{2}A^2$ *eſt (propter centri ab AX diſtantiam* $\frac{1}{3}A\sqrt{\frac{1}{2}}$*) momentum* $\frac{1}{6}A^3\sqrt{\frac{1}{2}}$; *& ſimiliter, Trianguli AOV, momentum* $\frac{1}{6}E^3\sqrt{\frac{1}{2}}$; *Trianguliique* $HDX=\frac{1}{2}XY$ *(propter diſtantiam* $\frac{1}{3}H$*) momentum* $\frac{1}{6}XYH$; *ipſiuſque HVD (ut modò)* $\frac{1}{4}LD^2+\frac{L}{6T}D^3$. *Ergo (propter* $OVHS=ASX-AOV-HDX-HVD$,*) ipſius OVHS, reſpectu AX, momentum* $\frac{1}{6}A^3\sqrt{\frac{1}{2}}-\frac{1}{6}E^3\sqrt{\frac{1}{2}}-\frac{1}{6}XYH-\frac{1}{4}LD^2-\frac{L}{6T}D^3$.

Ergo (propter diſtantias momentis proportionales,) in DH, ſumpta DI, quæ ſit, ad AS, ut $\frac{1}{6}A^3\sqrt{\frac{1}{2}}-\frac{1}{6}E^3\sqrt{\frac{1}{3}}-\frac{1}{6}XYH-\frac{1}{4}LD^2-\frac{L}{6T}D^3$ *ad ABO: ductaque IF parallelâ AX, occurrente SX in F; erit in (juncta) AF (cujus puncta ſingula in ea ratione diſtant ab AX,* $A\sigma$*) centrum gravitatis OVHS.*

Idem obtinebitur comparando ejuſdem OVHS momenta reſpectu $A\sigma$, *&* $A\Delta$; *vel AX, &* $A\Delta$; *eandem autem AF prodire neceſſe erit, ut quæ tranſire debeat tum per A, tum per ipſius OVHS centrum gravitatis.*

13. *Simili item proceſſu utendum eſt in ſpatio exteriori* $AVH\Delta$.

Eſt enim (ut modò) hujus reſpectu $A\Delta$ *momentum* $\frac{1}{2}S^2H+\frac{T}{6L}H^3$.

~~Idem~~ Item, reſpectu AX; rectanguli $ADH\Delta$ *momentum* $\frac{1}{2}KH^2$; *unde ſubducto ipſius HVD momento* $\frac{1}{4}LD^2+\frac{L}{6T}D^3$; *habebitur ipſius* $AVH\Delta$ *reſpectu AX momentum* $\frac{1}{2}KH^2-\frac{1}{4}LD^2-\frac{L}{6T}D^3$.

Ergo, in ΔH, *ſumpta* ΔM, *quæ ſit ad DH, ut* $\frac{1}{2}S^2H+\frac{T}{6L}H^3$ *ad* $\frac{1}{2}KH^2-\frac{1}{4}LD^2-\frac{L}{6T}D^3$; *erit in (juncta) AM (cujus ſingula puncta in ea ratione diſtant ab* $A\Delta$, *AX,) centrum gravitatis* $AVH\Delta$.

Idemque obtinebitur comparatis ejuſdem momentis reſpectu $A\Delta$, *&* $A\sigma$; *vel reſpectu AX, &* $A\sigma$: *eandem autem AM prodire neceſſe erit, ob cauſam ante inſinuatam: Ut non ſit ſpes inde, ob duas ejuſmodi rectas, ſe mutuò decuſſantes, ipſum centrum obtinendi, abſque Plani magnitudine.*

Si verò in his omnibus vel non ſit $SA\sigma$ *ang. rectus; vel Hyperbola, ſit ~~vel~~ Scalena (ſumptâ Diametro quavis aliâ loco Axis AX;) ſimilis adhibenda erit accommodatio cum ea, quam de Scalenis inſinuavimus ad* § K prop. 31. c. 5.
Dab. Oxon. Aug. 31. 1672.

Tab. II.

Fig. I.

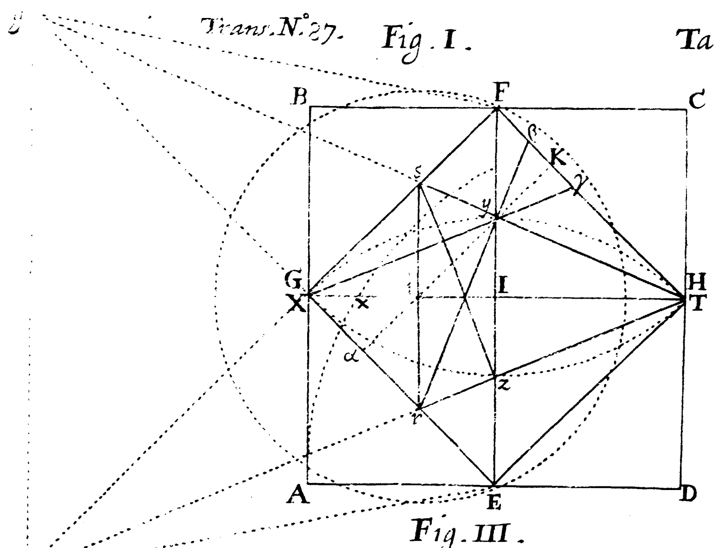

Fig. II.

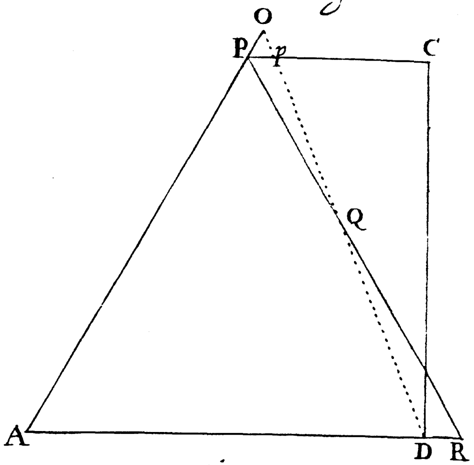

Fig. III.

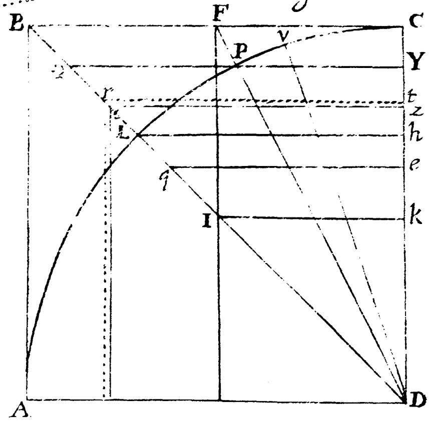

Fig. IV.